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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,671	02/20/2001	Makoto Otsuki	50006-087	3960

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EXAMINER	
MOHANDESI, IRAJ A	
ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/720,671	OTSUKI ET AL.	
	Examiner	Art Unit	
	Iraj A Mohandesi	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 February 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3,5,6 are rejected under 35 U.S.C. 102(b) as being anticipated by **Kloeppel 6,121,703**

Kloeppel'703 discloses a spindle motor (21, column 4 line 35) comprising, a hydrodynamic bearing (column 3, line 26) a shaft (50 Fig. 2)), a hollow cylindrical sleeve (54) being fitted on an outer circumferential surface of said shaft , a thrust plate (52) , being directly or indirectly attached to or integrated with either one of the shaft and sleeve which thrust plate being faced with a plane formed at one end of the other one of the shaft and said sleeve perpendicular to an axis of the said bearing (Fig.2) ,wherein hydrodynamic pressure in a radial direction is generated at a radial bearing portion formed by an outer circumferential surface said shaft an inner circumferential surface of said sleeve (Fig. 2) and hydrodynamic pressure in a thrust direction is generated at a thrust bearing portion formed by said thrust plate and formed at said one end of said other member perpendicular to said axis (Fig.2), the hydrodynamic bearing is characterized in that either one of the surfaces forming said radial bearing

portion is provided with a groove or grooves (column 5 line 21) witch generate a force in a thrust direction, wherein an upstream side of said radial bearing portion is shielded against outside atmosphere (94 Fig. 3) and a result negative pressure developed in the vicinity of said upstream side of the radial bearing, the hydro dynamic bearing is structured as a haft rotation type (Fig. 2) ,a spindle motor comprising the hydrodynamic bearing (21, column 4,line 35).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kloeppel'703**in view of **Ichiyama 6,034,454.**

Kloeppel'703teaches all claim invention except radial bearing portion having herringbone-shape groove and connected with outside atmosphere. **Ichiyama 454** discloses a motor with hydrodynamic bearing with herringbone-shape grooves wherein the radial bearing potion connected with outside atmosphere and utilize gas introduced at said radial bearing portion.(Fig.1) Therefore it would have been obvious to one having skill in the art at the time the Invention was made to modify **Kloeppel'703** hydrodynamic bearing with herring-

bone-shape grooves and having portion of the bearing connected to the outside atmosphere witch was taught by **Ichiyama 6,034,454** to generate a pressure with lifts up the sleeve and thrust plate from the top portion of the shaft with more efficiency.

Response to Arguments

3. Applicant's arguments filed on February 20,2003 have been fully considered but they are not persuasive.

Applicant remarks regarding the claims 1-3 and 5-6 have been carefully considered but they are not persuasive, since the rejections of the claimed invention are based on claim limitations.

With regards to **Claims 1-3, 5 and 6 Kloeppel'703 (** C 5,L,5-23) teaches a hydrodynamic bearing having a radial bearing portion and a thrust bearing portion the radial bearing portion has a surface with grooves that generate a force in a thrust direction. And one of the surfaces of the members forming the thrust bearing portion has grooves that generate hydrodynamic pressure in the thrust direction. The force generated in the thrust direction by the bearing portion reduces the gap between the two members forming the thrust bearing portion, and this force is balanced by the hydrodynamic pressure generated in the thrust bearing portion. This condition reduces variation in thrust position.

Referring specifically to FIG. 3, the design shown herein incorporates a rotating shaft 80 which rotates within a sleeve 82. The sleeve 82 cooperates with an integral, single piece threaded counter plate 84 (shown in FIG. 4) to

define the chamber or gaps 86 within which the shaft 80 rotates. The threaded counter plate 84 includes in a single integrated piece a surface 89 which cooperates with surfaces of the thrust plate 81 to establish a fluid dynamic thrust bearing which supports the shaft 80 for rotation; an extension 88, and a threaded mounting end 90. A fluid dynamic journal bearing is established in the gap or chamber 86 between the sleeve 82 and the rotating shaft 80 and the thrust plate 81 supported on the shaft. The shaft 80 and thrust plate 81 are supported for rotation by fluid (gas or liquid) between the surfaces of the shaft and thrust plate, and the corresponding inner surfaces of the sleeve 82 and the threaded counter plate 84; these surfaces have patterns of grooves thereon to establish appropriate pressures in the fluid and support the shaft for rotation, all in accordance with the known technology in the field of fluid dynamic bearings.

Communication

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Iraj A Mohandesi whose telephone number is (703)305-3242. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)306-0377.

IM
May 1, 2003